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1 **Contract-Checking Wrappers for C++ Classes**
Edwards, S.H.; Sitaraman, M.; Weide, B.W.; Hollingsworth, J.;
Software Engineering, IEEE Transactions on , Volume: 30 , Issue: 11 , Nov. 2
Pages:794 - 810

[Abstract] [PDF Full-Text (2128 KB)] IEEE JNL

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2 **Design of multi-invariant data structures for robust shared accesses multiprocessor systems**
I-Ling Yen; Bastani, F.B.; Taylor, D.J.;
Software Engineering, IEEE Transactions on , Volume: 27 , Issue: 3 , March 2
Pages:193 - 207

[Abstract] [PDF Full-Text (276 KB)] IEEE JNL

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3 **Representation inheritance: a safe form of "White box" code inherit**
Edwards, S.H.;
Software Engineering, IEEE Transactions on , Volume: 23 , Issue: 2 , Feb. 19
Pages:83 - 92

[Abstract] [PDF Full-Text (180 KB)] IEEE JNL

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4 **Optimizing memory accesses for spatial computation**
Seth, M.B.; Goldstein, S.C.;
Code Generation and Optimization, 2003. CGO 2003. International Symposiur on , 23-26 March 2003
Pages:216 - 227

[Abstract] [PDF Full-Text (511 KB)] IEEE CNF

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5 **Representation inheritance: a safe form f "white b x" c de inherit**
Edwards, S.H.;
Software Reuse, 1996., Proceedings Fourth International Conference on , 23-
April 1996
Pages:195 - 204

[Abstract] [PDF Full-Text (840 KB)] IEEE CNF

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6 **Refining object-oriented invariants and dynamic constraints**
Shield, J.; Hayes, I.J.;
Software Engineering Conference, 2002. Ninth Asia-Pacific , 4-6 Dec. 2002
Pages:52 - 61

[Abstract] [PDF Full-Text (262 KB)] IEEE CNF

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Abstract

Proceedings of SPIE -- Volume 1767
Inverse Problems in Scattering and Imaging, Michael A. Fiddy, Editor, December 1992, pp. 13-20

Invariant imbedding method and inverse source problems

Zhiming Sun and James P. Corones

Iowa State Univ. (USA)

This paper studies the direct scattering and inverse source problems for an one-dimensional inhomogeneous slab. The method used is the time domain wave splitting and invariant imbedding technique. For the case when the internal source j is a product, i.e., j(x,s) equals D(x) i(s)Y, a new current scattering operator J that maps the function i(s) into the scattered waves at the boundaries of the slab is defined. A system of coupled nonlinear integrodifferential equations for the current scattering operator kernel J(x,s) and the reflection operator kernel R(x,s) is derived. The inverse source problem solved in this paper is recovering the source space distribution function D(x) from the given permittivity profile and current scattering operator kernel J(0,s) for 0 <EQ s <EQ 1. Numerical results of the computation of the J kernel and the reconstruction of D(x) are presented.

doi:10.1117/12.139025

Additional Information

Enabled Rdb AIJs causes BAS-F-MEMMANVIO in PowerHouse call to External Product

author	subject: Enabled Rdb AIJs causes BAS-F-MEMMANVIO in Pow call to External Product
Frederick Hoenisch	Dec 24, 2004 16:56:16 GMT

After waiting for a patch and upgrading to Oracle's Rdb product to v 241, we re-enabled After Image Journaling (AIJ) on one of our data

When users perform a particular function (called an assessment) fr PowerHouse (PH) screen they would intermittantly get a stackdump "BAS-F-MEMMANVIO, memory management violation". This proble to increase in frequency as system loading increases.

After some investigating/head scratching we tried turning off AIJs (c left that we felt we changed) and the problem stopped.

We've recompiled the PowerHouse code which links to an external (address/postal code checking software) and get the same problem

We've opened calls with the three vendors for advise:
COGNOS (PH)
ORACLE (Rdb)
COMDATA (PC Lookup)

COMDATA provided me with some source code with some additior checking within the code to help us narrow down the problem. I rec under BASIC 1.5 with the /CHECK=ALL qualifier. The resulting .OB recompiled into the PowerHouse routine and our latest attempt to t yielded the following:

%BAS-F-MEMMANVIO, Memory management violation
-BAS-I-USEPC_PSL, at user PC=80C981A4, PSL=0000001B -SYS
ACCVIO, access violation, reason mask=04, virtual address=0000C
-BAS-I-FROLINSUB, from line 2999 in subprogram MMPREP %TR
TRACEBACK, symbolic stack dump follows
image module routine line rel PC abs PC
0 FFFFFFFF80C9A984 FFFFFFFF80C9A984
DEC$BASRTL 0 000000000000EF9C 000000007C1D8F9C
----- above condition handler called with exception 0000000C: %SY
ACCVIO, access violation, reason mask=04, virtual address=0000C
----- end of exception message
0 FFFFFFFF800A609C FFFFFFFF800A609C
0 FFFFFFFF80C981A4 FFFFFFFF80C981A4
QKDRIVER MMPREP MMPREP 1218 0000000000005834
00000000001122D4

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magical answer
Message with a response that solved the author's question

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```
0 FFFFFFFF80C9A894 FFFFFFFF80C9A894 QKDRIVER DRIVEF
call_external
7563 0000000000000664 00000000000506C4 QKDRIVER DRIVE
driver_mainline
1318 0000000000000048 0000000000050048
0 FFFFFFFF8026FE94 FFFFFFFF8026FE94
```

Here's an extract of the MMPREP routine from line 2999 (provided permission from COMDATA):

```
2999 EXTRA_INFO$ = EDIT$(EXTRA_WORK$,8% + 128%) ! STR
LSET MMISER_OUTREC_NONADDRESS = EXTRA_INFO$
IF TRACE$ = 'Y' THEN
PRINT 'LEAVING MMPREP ';MMISER_OUTREC_NONADDRESS
PRINT ' ADDRESS 1 ';MMISER_INREC_ADDRESS1
PRINT 'ADDRESS 2 ';MMISER_INREC_ADDRESS2
END IF

IF EXTRA_INFO$ <> SP THEN
LSET MMISER_OUTPAR_ERRORTEXT(0%) = '86 Extra Informati
ELSE
IF EDIT$(MMISER_INREC_ADDRESS1 + ' ' + &
MMISER_INREC_ADDRESS2,16%+32%+128%) <> &
EDIT$(ORIG_ADDR1$,16%+32%)
THEN
LSET MMISER_OUTPAR_ERRORTEXT(0%) = '80 Abbreviation'
END IF
END IF

! RESET PASSING PARAMETERS

INPAR$ = MMISER_INPAR_WHOLE
INREC$ = MMISER_INREC_WHOLE
OUTPAR$ = MMISER_OUTPAR_WHOLE
OUTREC$ = MMISER_OUTREC_WHOLE

GOTO 32767
```

Note: We've checked quotas as well and they appear to be adequa reported from PQUOTA utility).

Typical user's quotas are as follows:
Maxjobs: 0 Fillm: 8192 Bytlm: 1500000
Maxacctjobs: 0 Shrfillm: 0 Pbytlm: 0
Maxdetach: 0 BIOlm: 100 JTquota: 4096
Prclm: 6 DIOlm: 200 WSdef: 1024
Prio: 4 ASTlm: 206 WSquo: 20000
Queprio: 0 TQElm: 50 WSextent: 70000
CPU: (none) Enqlm: 32767 Pgflquo: 1500000

Any thoughts/comments would be appreciated.

VMS 7.3-2
Rdb 7.1-241
PH 7.10G1

The PC_LOOKUP product hasn't had any program updates for a n years.

Yours truly,
Fred.

Note: If you are the author of this question and wish to assign points to any of the answe login first.For more information on assigning points ,click here

Sort Answers By: Da

Robert Gezelter ★ — Dec 24, 2004 17:03:47 GMT 0 pts

Fred,

Does the program fault in the same place every time?

- Bob Gezelter, http://www.rlgsc.com

Frederick Hoenisch — Dec 24, 2004 17:08:24 GMT N/A: Question Author

Yes, but because it is a production application, we didn't have many opportunities to test, before disabling AIJs.

Of the failures - all were at the same point.

Robert Gezelter ★ — Dec 24, 2004 17:25:48 GMT 6 pts

Fred,

Personally, I would probably set things up so that I could single step program at a machine code or source code level to determine EXAC call, and what parameter it is having a problem with. As a start, che at the address 80C981A4, which would appear to be in system spa glance, it seems unlikely that an AIJ issue would produce a synchro problem, one that occurs at exactly the same place every time.

I would really want to get the debugger on it and see exactly which to which routine is causing the problem. Otherwise, we are working speculation, not facts.

- Bob Gezelter, http://www.rlgsc.com

Robert Gezelter ★ — Dec 24, 2004 17:27:54 GMT 6 pts

Fred,

A followup thought. A quota related issue could produce a timing in problem. In any event, the debugger would allow precise identificati problem

- Bob Gezelter, http://www.rlgsc.com

Garry Fruth ★ — Dec 24, 2004 17:58:24 GMT 7 pts

I suggest you add a line number to every statement; this may help t to a single statement. E.G.

```
2999 EXTRA_INFO$ = EDIT$(EXTRA_WORK$,8% + 128%) ! STR
29991 LSET MMISER_OUTREC_NONADDRESS = EXTRA_INFO
29992 IF TRACE$ = 'Y' THEN
29993 PRINT 'LEAVING MMPREP ';MMISER_OUTREC_NONADD
29994 PRINT ' ADDRESS 1 ';MMISER_INREC_ADDRESS1
29995 PRINT 'ADDRESS 2 ';MMISER_INREC_ADDRESS2
29996 END IF
...
```

Line numbers do not need to be sequential nor in order; but they do

unique. The compiler should let you know about duplicates.

I suspect the accvio occurs in the four lines that "RESET PASSING PARAMETERS". If the calling program passed fixed-length string b rather than using dynamic strings (I think my terminology may be a this), then changing the length of what is passed may not be legal.

Frederick Hoenisch — Dec 24, 2004 19:47:54 GMT N/A: Question Author

Thank you for the responses thus far. I failed to mention that our ati duplicate the problem in our non-production environments all failed.

Because the problem only shows itself when the system is busy, I h discuss with the Application Manager the possibility of trying to deb problem during prime time (this is unlikely).

PowerHouse has a debugger, but we're not sure (at this point) if it v debug the external calls (BASIC code)? Something to try and expe over the holidays I guess.

Volker Halle — Dec 25, 2004 11:50:02 GMT 7 pts

Fred,

consider to issue a SET PROC/DUMP/ID=xxx against a process ru BASIC image, before invoking the problematic user function. Once ACCVIO happens, you'll get a process dump (SYS$LOGIN:imagen which can be analyzed by ANAL/PROC. You can do analysis of the a non-realtime environment first. You can find the failing instruction stack leading to the problem and look at the memory contents bein etc.

To make sure, that a complete process dump (including process-pe from system space) can be written, you may want to (temporarily) g IMGDMP$READALL right to the user running the application.

Trying to analyse the problem in 'real-time' may be different, especi ACCVIO is dependant on system load. You'll never know, whether problem. It may even be impossible to reproduce it with running the

Volker.

Volker Halle — Dec 25, 2004 12:51:47 GMT 7 pts

Fred,

could you also try the following, please:

If we believe the PC value reported by BAS-I-USEPC_PSL, you ca following SDA command on the system, where this problem had ha

$ ANAL/SYS
SDA> EXA/INS 80C981A4

As the RM (Reason Mask) has been reported as 04 (=WRITE), the DESTINATION address pointed by the instruction producing the AC must point to non-writeable memory.

SDA> MAP 80C981A4

may also tell, which execlet/image/library this code is in.

If the reported instruction, registers etc. make sense, try SDA> EXA 80C981A4-20;20 to find out, where the 'invalid' value (probably 000

which is the failing VA reported in the ACCVIO) in the register may loaded from.

Volker.

Volker Halle 

Dec 25, 2004 19:22:04 GMT 7 pts

Fred,

from experimenting with a little BASIC test program:

0 FFFFFFFF800A609C FFFFFFFF800A609C <<<
SYS$CALL_HANDL_C+0002C
0 FFFFFFFF80C981A4 FFFFFFFF80C981A4 <<< failing instructio
QKDRIVER MMPREP MMPREP 1218 0000000000005834
00000000001122D4

Source code line 1218 in the MMPREP module seems to be the las executed in this module before calling a routine in system space, w the ACCVIO at PC 80C981A4. Finding this line requires a source c from the version of the module running at your site.

PC 1122D4 must be a return address (following a JSR instruction).

Taking a process dump from a failing BASIC program works fine. W process dump, you have all the information you need to figure out, which instruction is failing due to which invalid address in which reg

Volker.

David Sneddon 

Dec 26, 2004 01:37:20 GMT 7 pts

Fred,

As a longtime user of BASIC, my first instinct on
the info you supplied would be to increase pgflquo
(try doubling it).

Regards
Dave

Frederick Hoenisch

Jan 4, 2005 19:49:46 GMT N/A: Question Author

Thanks again All:

The next opportunity to test is this weekend and the first 'load' test i morning.

I'll give it a go and let you know. Thanks for the advice. For this nex intend to:

1. Double PGFLQUO for all users of the app.
2. Generate PROCESS dump files.
3. Add more line numbers to MMPREP.

Yours truly,
Fred.

Ian Miller 

Jan 5, 2005 10:11:01 GMT unassigned

---

could there be an issue with the location of the AIJ which is badly h leads to the ACCVIO. Is the AIJ file placed on a disk on which there free space and that the file and the file and directory protection are

David Sneddon

Jan 5, 2005 10:34:35 GMT unassigned

Ian,

I think the AIJ stuff probably requires some memory that is blowing the pgflquo value. I have seen our developers make "small" changes like allocating a new 10000 element string array and suddenly the application falls over with ACCVIO errors. Increasing pgflquo makes it go away. The fact that Fred can't reproduce it in a test environment suggests that the quotas in the test environment are probably different to the production environment.

Dave

Ian Miller 

Jan 5, 2005 10:39:53 GMT unassigned

Dave, you are correct that quotas are the first thing to suspect. I wa wondering about other possible causes.

David Sneddon 

Jan 5, 2005 10:54:35 GMT unassigned

Yes it may be something else but all MEMMANVIO errors I have seen over the years have been either pgflquo issues or recursive/circular calls not terminating (ending up in stack overflows).
Failure to create/rename files due to insufficient contiguous space for directories usually manifest as ACP type errors.

Dave

David Sneddon 

Jan 5, 2005 10:58:30 GMT unassigned

Having just re-read the original and the comment about things breaking when the load increases, is it possible that there is insufficient pagefile available? Are there now more users than there used to be?

Jan van den Ende 

Jan 5, 2005 12:20:51 GMT unassigned

Fred,

Having read and re-read the whole stream, I am still quite in doubt ' is to the point for you or not, but since I found no definitive argumer out, I will just relate our expirience (and workaround).

We first stumbled on it when we tried to implement Clusterwide Log

In ANY area definition in Rdb (and also DBMS), internally the logica are evaluated up to the level where a physical or a Concealed Devi A Concealed device is then tested to be valid - explicitly - in LNM$SYSTEM_TABLE; EXECUTIVE mode.
Should somehow a reference be made to a data area that does NC then an Access Violation is generated. How that would trickle down Powerhouse is unknown to me.
Oracle was able to confirm our findings (back in febrary 2000), and support for clusterwide tables 'in the next release'. We have since b it not yet repaired in any following release...

As I started this post with, it might have nothing to do with your prot might well be worth checking.

Proost.

Have one on me.

Jan

start new thread » notify me »

DIGITAL MARS [Home] [Search] [D] [News Groups]

D - assert(Object)

Wed, 17 Mar 2004 14:20:43 -0500 Vathix <vathix xx dprogramming.com> writes:

Object o;
assert(o);

Instead of making sure "o" is a valid reference, it causes an access violation when trying to run its invariant. I think it should check for null first; it makes it easier, and would do what most newbies expect.

--
Christopher E. Miller

Thu, 18 Mar 2004 16:31:03 -0800 "Walter" <walter xx digitalmars.com> writes:

"Vathix" <vathix xx dprogramming.com> wrote in message
news:c3a8eb$304f$1 xx digitaldaemon.com...
> Object o;
> assert(o);
>
> Instead of making sure "o" is a valid reference, it causes an access
> violation when trying to run its invariant. I think it should check for
> null first; it makes it easier, and would do what most newbies expect.

An access violation is an exception, and if the invariant fails an exception is also thrown. All an access violation is is the hardware checking for the error rather than checking for it with software.

Fri, 19 Mar 2004 07:24:51 -0500 Vathix <vathix xx dprogramming.com> writes:

Walter wrote:

> "Vathix" <vathix xx dprogramming.com> wrote in message
> news:c3a8eb$304f$1 xx digitaldaemon.com...

>
>>Object o;
>>assert(o);
>>
>>Instead of making sure "o" is a valid reference, it causes an access
>>violation when trying to run its invariant. I think it should check for
>>null first; it makes it easier, and would do what most newbies expect.
>
>
> An access violation is an exception, and if the invariant fails an exception
> is also thrown. All an access violation is is the hardware checking for the
> error rather than checking for it with software.
>

I just mean it'd be nice if assert(o) translated into assert(o !== null && o.invariant()) instead of just assert(o.invariant()) so it works more like an if(o) statement. It's in debug mode so the extra check shouldn't be important. It's not a big deal, as I've gotten used to typing assert(o !== null); -- it's easier than running the program through the debugger.

--
Christopher E. Miller